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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,972	06/26/2003	Chien-Hua Chen	200208828-1	7437

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EXAMINER

KOVAL, MELISSA J

ART UNIT	PAPER NUMBER
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2851

DATE MAILED: 01/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/608,972

Applicant(s)

CHEN ET AL.

Examiner

Melissa J Koval

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 November 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 10 and 23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 11-22 and 24-35 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Election/Restrictions

This application contains claims 10 and 23 are drawn to an invention nonelected with traverse in Applicant's Response of July 23, 2004. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-9, 11-22, and 24-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Slobodin ('685).

Refer to Figure 1 of Slobodin, for example.

Claim 1 sets forth: A display device, comprising:

a spectral separator configured to refractively separate multispectral light into a plurality of light bands (See color wheel 120 formed from two cones of optically transparent material and column 6, lines 29 through 44.), and

a homogenizing element configured to homogenize at least one separated light band (See light pipe 30, and column 4, lines 11 through 16.)."

Claim 2 sets forth: The display device of claim 1, further comprising a light source configured to produce the multispectral light." See light source 12, lamp 14, reflector 16, and polychromatic light 18.

Claim 3 sets forth: The display device of claim 1, further comprising an image-forming element configured to form an image using the homogenized light band." See light valve 48 and column 4, lines 17 through 37.

Claim 4 sets forth: "The display device of claim 3, where the homogenized light band is configured to have a cross-section that facilitates scanning onto the image-forming element." Refer to Figure 4 of Slobodin and also column 4, lines 50 through 56. Also see column 2, lines 10 through 25, and column 3, lines 43 through 58.

Claim 5 sets forth: "The display device of claim 4, where the cross-section includes an elongate ribbon." Again refer to Figure 4 as well as Figures 5 and 6 of Slobodin. The segments of the light pipe 30, which includes first, second, and third optically conductive cores 70, 72, and 74, meet the claimed limitation of a cross-section including an "elongate ribbon". Refer to column 4, lines 50 through 67. Furthermore, note that first through third input apertures 32, 34 and 36 of optically conductive cores 70, 72, and 74 receive first through third light beams 24, 26 and 28 in a red, green and blue sequence.

Claim 6 sets forth: "The display device of claim 1, where the spectral separator includes a prism." Refer to Figures 11A and 12A of Slobodin wherein two embodiments for a prismatic type color wheel are shown. The wheel converges then diverges light. Each embodiment shows a color wheel made from optically transparent material. See column 6, lines 30 through 67, and column 7, lines 1 through 4. "Merriam-Webster's Collegiate Dictionary, Tenth Edition" defines a prism as follows: "2 a: a transparent body that is bounded in part by two nonparallel plane faces and is used to refract or

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disperse a beam of light. 4: a medium that distorts, slants or colors whatever is viewed through it."

Claim 7 sets forth: "The display device of claim 1, where the spectral separator is configured to refractively separate the multispectral light into at least three light bands."

Again refer to column 6, lines 29 through 44.

Claim 8 sets forth: "The display device of claim 7, where the at least three light bands include red, green, and blue light bands. Claim 8 is rejected for the same reasons already applied to rejected claim 7.

Claim 9 sets forth: "The display device of claim 1, comprising at least one homogenizing element for each separated light band." Refer to column 2, lines 33 through 42.

Claim 11 sets forth: The display device of claim 9, where each homogenizing element includes a light pipe." Claim 11 is rejected for the same reasons already applied to rejected claim 9.

Claim 12 sets forth: "The display device of claim 1, further comprising an interlacing structure configured to interlace the separated light bands." See column 2, lines 10 through 25 of Slobodin. On page 9 of applicant's specification, applicant teaches a repeated light pattern with respect to interlacing.

Claim 13 sets forth: "The display device of claim 12, where the interlacing structure include a plurality of dichroic mirrors." Column 2, lines 10 through 25, teach the presence of a color wheel. Said color wheel or wheels are described as comprising dichroic filter segments 90B, 90G, and 90R in column 5, lines 7 through 67, and column

6, lines 1 through 15.

Claim 14 sets forth: "The display device of claim 1, where the image-forming element includes a micromirror array." See column 4, lines 24 and 25.

Claim 15 sets forth: "A method of making a display device, comprising:
providing a light source (See light source 12, lamp 14, reflector 16, and polychromatic light 18.),
providing a spectral separator configured to refractively separate the light from the light source into a plurality of light bands (See color wheel 120 formed from two cones of optically transparent material and column 6, lines 29 through 44.),
providing a homogenizing element configured to homogenize at least one separated light band (See light pipe 30, and column 4, lines 11 through 16.);
providing an image-forming element configured to form an image from the homogenized light (See light valve 48.).

The method of making the display device is met by the teaching of Slobodin as each of the elements claimed therein is provided by the teaching of Slobodin as already discussed above.

Claim 16 sets forth: "The method of claim 15, where providing the light source includes providing a multispectral light source (See light source 12, lamp 14, reflector 16, and polychromatic light 18.),

providing the spectral separator includes providing a prism (See the rejection of claim 6 above.),

providing the homogenizing element includes providing a light pipe (See light

pipe 30, and column 4, lines 11 through 16.); and

providing the image-forming element includes providing a micromirror array (See column 4, lines 24 and 25.).

Claim 17 is rejected for the same reasons applied to already rejected claim 12.

Claim 18 is rejected for the same reasons already applied to rejected claim 4.

Claim 19 is rejected for the same reasons already applied to rejected claim 15.

Claim 20 sets forth: "The method of claim 19, where generating multispectral light includes generating substantially white light." See column 3, lines 30 through 32, wherein lamp 14 is described as a metal halide arc lamp. Applicant mentions metal halide lamps at the top of page 4 of his specification.

With respect to claim 21, again refer to the rejection of claim 6 above.

With respect to claims 22 and 25, see the rejection of claim 16 above.

Claim 24 sets forth: "The method of claim 19, where forming an image includes selectively reflecting the light band from a reflective image-forming element."

Refer to column 4, lines 24 and 24 wherein light valve 48 is described as a reflective CMOS device.

With respect to claim 26, refer to the rejection of claim 4 above.

With respect to claim 27, refer to the rejection of claim 5 above.

With respect to claim 28, refer to the rejection of claim 7 above.

With respect to claim 29, refer to the rejection of claim 9 above.

With respect to claims 30 through 33, all of the elements claimed therein have been addressed in the rejections of claims 1-9, 10-22, and 24 through 29 as set forth

above. As per the preamble of claim 30, i.e. "A storage medium readable by a processor, having embodied therein a program of commands executable by the processor to, " see controller 58 of Slobodin. Also see column 4, lines 37 through 49. The controller 58 must include the elements set forth in the preamble in order for the light valve color video projector 10 taught by Slobodin to operate as desired. Also see column 7, lines 23 through 33.

Claim 34 is rejected for the same reasons already applied to rejected claim 1.

Claim 35 is rejected for the same reasons already applied to rejected claims 2 and 3.

Response to Arguments

Applicant's arguments filed November 10, 2004 have been fully considered but they are not persuasive. Claims 1, 7, 15, 19, 21, and 30 have been amended to include the term "refractively" with respect to the separation of light. Applicant's remarks suggest that Slobodin U.S. Patent 6,334,685 B1 does not teach the refractive separation of light. On the final two lines of page 8 of applicant's remarks, applicant states the following: "Applicant's disagree that the color wheels of Figures 11A and 12A disclose a prism or refractive spectral separator." The examiner would direct applicant to column 6, lines 33 through 36, wherein the following is set forth: "color wheel 120 is formed from two cones of optically transparent material each having an elevation E for forming a tapering separation between first, second, and third major surfaces 122, 124, and 126." Similarly in column 6, lines 57 through 60, the following is set forth: "In this embodiment, color wheel 130 is formed a single cone of optically transparent material

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having an elevation E for forming a tapering separation between first and second major surfaces 132 and 134." Refraction is inherent in transparent materials. Because applicant's specification does not give a specific teaching for applicant's invention beyond that which is generally understood with respect to refraction as a scientific principle, the examiner interprets refraction in terms of a general definition, i.e. "The bending of a transmitted ray of light at an interface in which there is a different index of refraction on each side." Refraction is described by Snell's law. Cited below are pages 90 and 402 of "Projection Displays" by Stupp et al. that include a definition of Snells' law as found on page 90, and a definition of refraction as given in "Appendix 4", on page 402. Therefore the examiner disagrees with applicant's arguments and has maintained her rejection from the previous office action of August 1, 2004, as restated above in view of Applicant's amendment.

The advantages that applicant refers to in the last paragraph of page 9, continuing into page 10 of his remarks, when comparing his refractive spectral separator over the prior art of record is not found in the claim language.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Englehardt U.S. Patent Application Publication US 2001/0043403 A1 teaches an optical arrangement.

Stupp et al. Projection Devices, copyright 1999, John Wiley & Sons Ltd., pages 90 and 402.

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THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melissa J Koval whose telephone number is (571) 272-2121. The examiner can normally be reached on Monday through Friday. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571)272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

MJK



JUDY NGUYEN
PATENT EXAMINER